

Appl. No. 09/608,709

25. A high-purity cobalt material comprising less than 50 ppm total metallic impurities, and less than 0.05 ppm Cr.

26. The cobalt material of claim 25 in the shape of a sputtering target.

27. A cobalt film deposited from the sputtering target of claim 26.

28. The cobalt material of claim 25 comprising less than 0.01 ppm Cr.

29. The cobalt material of claim 25 comprising less than 25 ppm total metallic impurities.

30. The cobalt material of claim 25 comprising less than 25 ppm total metallic impurities, and less than 0.01 ppm Cr.

---

BI 31. (Amended) A high-purity cobalt material comprising 99.99% cobalt, less than 0.12 ppm Mn, and a sum total of Mg, Al, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, Zr, Nb, Mo, W and Pb of less than 50 ppm.

---

32. The cobalt material of claim 31 comprising less than 1 ppb of Th, and comprising less than 1 ppb of U.

Appl. N . 09/608,709

33. The cobalt material of claim 31 in the shape of a sputtering target.

34. A cobalt film deposited from the sputtering target of claim 33.

35. The cobalt material of claim 31 wherein the sum total is less than 40 ppm.

36. The cobalt material of claim 31 wherein the sum total is less than 30 ppm.

37. The cobalt material of claim 31 wherein the sum total is less than 25 ppm.

62 38. (Amended) A cobalt material comprising greater than 99.9% cobalt and less than 0.5 ppm each of Na and K, less than 5 ppm of Fe, less than 3 ppm of Ni, less than 1 ppm of Cr, less than 1 ppm of Ti and less than 450 ppm of O.

39. The cobalt material of claim 38 comprising greater than 99.99% cobalt.

40. The cobalt material of claim 38 in the shape of a sputtering target.

41. A cobalt film deposited from the sputtering target of claim 40.

B3 42. (Amended) A high-purity cobalt material comprising less than 50 ppm total metallic impurities, less than 0.12 ppm Mn and less than 3 ppm Ti.

Appl. No. 09/608,709

43. The cobalt material of claim 42 in the shape of a sputtering target.
44. A cobalt film deposited from the sputtering target of claim 43.
45. The cobalt material of claim 42 comprising less than 0.5 ppm Ti.
46. The cobalt material of claim 42 comprising less than 0.04 ppm Ti.
47. The cobalt material of claim 42 comprising less than 0.01 ppm Cr.
48. The cobalt material of claim 42 comprising less than 0.01 ppm Cr, and comprising less than 1 ppm P.
49. The cobalt material of claim 42 comprising less than 0.5 ppm Ti, comprising less than 0.01 ppm Cr, and comprising less than 0.08 ppm P.
- 
50. (New) The cobalt material of claim 42 comprising less than 450 ppm of O.
51. (New) The cobalt material of claim 42 comprising less than 100 ppm of O.
52. (New) The cobalt material of claim 42 comprising a cobalt purity of greater than 99.99%, excluding gases; and less than 450 ppm of O.

Appl. No. 09/608,709

53. (New) The cobalt material of claim 42 comprising a cobalt purity of greater than 99.99%, excluding gases; and less than 100 ppm of O.

54. (New) The cobalt material of claim 42 comprising a cobalt purity of greater than 99.999%, excluding gases; and less than 100 ppm of O.

55. (New) A sputtering target comprising at least 99.99% cobalt and less than 0.5 ppm each of Na and K, less than 5 ppm of Fe, less than 3 ppm of Ni, less than 1 ppm of Cr, less than 1 ppm of Ti and less than 100 ppm of O.

64 56. (New) The sputtering target of claim 55 comprising a cobalt purity of greater than 99.999%, excluding gases.

57. (New) The sputtering target of claim 55 comprising a cobalt purity of 99.9995%, excluding gases

58. (New) A sputtering target comprising at least 99.99% cobalt; less than 50 ppm total metallic impurities, less than 60 ppm of O, and less than 5 ppm of C.

59. (New) The sputtering target of claim 58 comprising a cobalt purity of at least 99.999%, excluding gases.

Appl. No. 09/608,709

60. (New) The sputtering target of claim 58 comprising a cobalt purity of 99.9995%, excluding gases.

61. (New) The sputtering target of claim 58 wherein the less than 60 ppm of O is less than 20 ppm of O.

62. (New) A cobalt film deposited from the sputtering target of claim 58.

65. (New) The cobalt material of claim 58 comprising less than 25 ppm total metallic impurities.

66. (New) A high-purity cobalt material comprising less than 5 ppm total metallic impurities.

67. (New) The cobalt material of claim 66 comprising less than 450 ppm of O.

68. (New) The cobalt material of claim 66 comprising less than 100 ppm of O.

69. (New) The cobalt material of claim 66 in the shape of a sputtering target.